

REMARKS

Claims 1, 2, 4-8, 10, 11, and 13-21 are active in the application.

5 Claim 1 has been amended to make it clearer. The scope of claim 1 has not been changed.

Claim 4 has been amended to correct an antecedent basis error by adding the word 'axis'. Claim 4 has also been amended to require that the holding holes are 'fixedly located'. This feature is shown in Fig. 8 of the application which shows the cylindrical member 38 as a monolithic part with no movable or slidable components that allow adjustment of eccentricity.

10 Claims 19-21 were rejected under 35 USC 112, second paragraph for being indefinite as a result of antecedent basis errors. These claims have been amended to correct the errors.

Claim 5 has been amended to recite that the optical axis of the rod lens coincides with a center of a light beam from the optical fiber. This features is found in original claim 1 (which includes the same limitation) and throughout the present specification.

Claims 1, 2, 4-8, 10, 11, and 13-21 were rejected under 35 USC 103(a) as being obvious over US Patent 6,142,678 to Cheng. This rejection is traversed.

20 Cheng teaches a coupler that aligns an optical fiber 30 and a lens 45. The optical fiber 30 and lens 45 are disposed in sleeves 15, 20 that have abutting endfaces 17. The abutting endfaces 17 allow the sleeves to be moved in directions perpendicular to the optical axis. This allows the lens and optical fiber to be aligned in directions perpendicular to the optical axis (i.e. adjustment of eccentricity). This feature is explained in col. 5, lines 56-60, which states: "The second and third directions are adjusted by sliding the abutting ends 17 against one another such that the two end faces 35 and 50 are moved relative to each other in directions perpendicular to the longitudinal axis of the fibre tube."

25 However, completely absent from Cheng is any teaching or suggestion to eccentrically align the fiber and lens such that "the optical axis of the rod lens coincides with a center of a light beam incident on said rod lens from said optical fiber" as required by claim 1 and claim 5 as amended. Eccentric alignment is used since the fiber and lens

have inclined endfaces. Nowhere does Cheng teach or suggest eccentric alignment or eccentric alignment specifically providing for a light beam coinciding with the optical axis of a rod lens. To the contrary, Cheng teaches that eccentric alignment must be avoided.

5 The Office Action refers to col. 1 of Cheng as teaching eccentric alignment, but this is incorrect. Col. 1, lines 27-31 states: "When the ferrule internal diameter is too large for the fibre...it becomes necessary to adjust or tune the alignment of the fibre to the lens." Also, col. 1, lines 50-52 states: "Also, relatively easy alignment tuning is possible to compensate for eccentric fibre positioning within the ferrule." These
10 statements necessarily indicate that eccentric alignment between fiber and lens *is a problem that must be corrected*. The coupler of Cheng is specifically designed to overcome the problem of eccentric alignment by allowing sliding on the endfaces 17.

Further, col. 6, lines 3-6 and lines 25-31 teach that the rod lens or optical fiber 'protrudes' into the opposite sleeve, thereby limiting the possible eccentricity. These
15 examples teach away from requiring a certain amount of eccentricity. Also, it is noted that every figure of Cheng shows the fiber and rod lens having accurate axial alignment; Cheng shows no embodiments with eccentric alignment.

Hence, Cheng teaches away from the claimed fiber-lens collimator that
20 *intentionally provides eccentric alignment* between fiber and lens. Nowhere does Cheng suggest that eccentric alignment is desirable in certain cases or is even an option. Cheng teaches only that eccentric alignment is a problem that should be eliminated by precise positioning of the sleeves 15 20 (see col. 1 of Cheng).

The Cheng technique does not provide a device with "the center of the rod lens substantially coinciding with a center of a light beam incident on the rod lens from the
25 optical fiber" as argued in the Office Action. Instead, Cheng teaches that the fiber and rod lens are aligned axially, without eccentricity. Accordingly, the rejections of claim 1 and claim 5, as amended, should be withdrawn.

In col. 7, lines 16-18, Cheng mentions that first section 68 and second section 69 may not be concentric, and this passage was underlined by the Examiner. However,
30 Sections 68 and 69 are front and rear sections of the fibre tube 26. Nonconcentric

alignment between sections 68 and 69 does not imply nor in any way suggest eccentric alignment between the optical fibre and lens as in the present invention.

Claim 4 as amended requires that the two holding holes have axes that are fixedly located. That is, the holding holes are fixed to have eccentric positions that cannot be changed. The fixed holding holes will necessarily provide eccentric alignment between fiber and lens. By comparison, Cheng requires *slidable* sleeves (see col. 5, lines 55-60) so that eccentric misalignment between fiber and lens can be eliminated. Hence, claim 4 is patentable over Cheng.

Regarding claim 6, Cheng does not teach or suggest that a cylindrical optical fiber chip can hold the optical fiber at an eccentric position relative to the axis of the fiber chip.

Regarding claim 20, Cheng does not teach or suggest that an optical path of the optical fiber can be eccentric with respect to the holding member.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1, 2, 4-8, 10, 11, and 13-21 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees for the petition or for entry of this amendment to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson P.C.).

Respectfully submitted,



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